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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

TOPLISS

Atty. Ref.: 117-577

Appl. No. 10/575,879

TC/A.U. 2615

Filed: April 14, 2006

Examiner: TBA

For: LOUDSPEAKER

\* \* \* \* \*

January 9, 2007

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**SUBMISSION OF INTERNATIONAL PRELIMINARY REPORT**  
**ON PATENTABILITY**

For the Examiner's convenient reference, Applicants attach hereto a copy of the International Preliminary Report on Patentability (and the transmittal sheet therefor) for the international application on which this national stage application is based.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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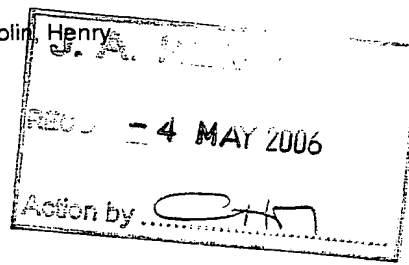
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From the INTERNATIONAL BUREAU

**PCT**NOTIFICATION CONCERNING  
TRANSMITTAL OF COPY OF INTERNATIONAL  
PRELIMINARY REPORT ON PATENTABILITY  
(CHAPTER I OF THE PATENT COOPERATION  
TREATY)

(PCT Rule 44bis.1(c))

To:

MERRYWEATHER, Collin, Henry  
J.A. Kemp & Co.  
14 South Square  
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London WC1R 5JJ  
ROYAUME-UNIDate of mailing (day/month/year)  
27 April 2006 (27.04.2006)Applicant's or agent's file reference  
N.92887 CHM**IMPORTANT NOTICE**International application No.  
PCT/GB2004/004314International filing date (day/month/year)  
11 October 2004 (11.10.2004)Priority date (day/month/year)  
14 October 2003 (14.10.2003)Applicant  
1... LIMITED et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

Dorothee Mülhausen

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# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference N.92887 CHM	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/GB2004/004314	International filing date ( <i>day/month/year</i> ) 11 October 2004 (11.10.2004)	Priority date ( <i>day/month/year</i> ) 14 October 2003 (14.10.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant 1... LIMITED		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input checked="" type="checkbox"/> | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input checked="" type="checkbox"/> | Box No. VII  | Certain defects in the international application  |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report 18 April 2006 (18.04.2006)
Facsimile No. +41 22 740 14 35	Authorized officer <div style="text-align: center; font-weight: bold;">Dorothee Mülhausen</div> Telephone No. +41 22 338 87 40

# PATENT COOPERATION TREATY

REC'D 29 DEC 2004

WIPO

PCT

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

### FOR FURTHER ACTION

See paragraph 2 below

International application No.  
PCT/GB2004/004314

International filing date (day/month/year)  
11.10.2004

Priority date (day/month/year)  
14.10.2003

International Patent Classification (IPC) or both national classification and IPC  
H04R17/00, H04R7/04, H01L41/09

Applicant  
1...LIMITED

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/004314

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/004314

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**Box No. II Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

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**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	2-9
	No: Claims	1,10-33
Inventive step (IS)	Yes: Claims	2-9
	No: Claims	1,10-33
Industrial applicability (IA)	Yes: Claims	1-33
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/004314

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

- 1 The following documents are referred to in this communication:  
D1: GB-A-2 386 026 (1 LTD) 3 September 2003 (2003-09-03)  
D2: US-A-6 151 402 (AZIMA HENRY ET AL) 21 November 2000 (2000-11-21)  
D3: WO 03/001841 A (LONGBOTTOM SIMON ANDREW ; SHEPHERD MARK RICHARD (GB); 1 LTD (GB); MCKE) 3 January 2003 (2003-01-03)
- 2 Art. 6 PCT
  - 2.1 Although **claims 1 and 19** have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter (loudspeaker comprising a support and a piezoelectric actuator) and to differ from each other only with regard to the definition of the subject-matter for which protection is sought. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
  - 2.2 **Claim 1** comprises all the features of **claim 19** and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).
- 3 INDEPENDENT CLAIMS 1 AND 19
  - 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent **claims 1 and 19** is not new in the sense of Article 33(2) PCT.  
With regard to **claim 1**, document **D1** discloses (the references in parenthesis applying to this document):  
A loudspeaker comprising
    - a support (cf. page 2, line 13 and page 7, line 15 and figure 3B),
    - a diaphragm mounted on the support (cf. items "31", "312" and "313" in figure 3B); and
    - a piezoelectric actuator (cf. figure 3A) arranged to provide, on activation, relative movement between two ends of the actuator, wherein each of said ends of the actuator is coupled to the diaphragm to vibrate the diaphragm on activation of the actuator (cf. figure 3A and page 7, lines 19-24; page 8, lines 7-12; page 9, lines 4-



6 and claim 1).

Therefore, the subject-matter of **claim 1** does not meet the requirements of Art. 33(2) PCT.

- 3.2 Independent **claim 19** refers to a diaphragm and a piezoelectric actuator to provide, on activation, relative movement between two ends of the actuator, wherein each of said ends being coupled to the diaphragm to vibrate the diaphragm on activation of the actuator.

Document **D1** also discloses all the features of independent claim 19 in combination (cf. fig. 3A, 3B; page 2, line 21 - page 4, line 12; page 5, line 11 - page 9, line 7 and claim 1).

Therefore, the subject-matter of **claim 19** does not meet the requirements of Art. 33(2) PCT.

- 4 **Dependent claim 2** is not clear (Article 6 PCT), cf. remarks under item VIII.  
**For the assessment of claim 2, it has been assumed that the diaphragm is directly coupled to one end of the actuator being fixed relative to the support (cf. item VIII, 1).**

The subject-matter of **claim 2 in combination with the features of independent claim 1** to which it refers is not disclosed in their present form in any documents cited in the search report.

The subject-matter of claim 2 in combination with claim 1 differs from **D1** in that it defines that

- the diaphragm is mounted to the support with a portion of the diaphragm directly coupled to one end of the actuator being fixed relative to the support.

Hereby the following problem is solved: To ease the assembly of the loudspeaker.

None of the documents cited hint at the combination of these features.

In particular, **D1** shows an actuator whereby both ends of the actuator are indirectly coupled (by means of base plates; cf. page 8, lines 7-12 and figure 3A) to the diaphragm and whereby the main section of the diaphragm coupled to one end of the actuator is not fixed relative to the support (cf. page 3, lines 26 - page 4, line 2 and page 8, lines 18-19).

D2 describes a piezoelectric actuator whereby a case is fixed to a first edge of the actuator and the sound generating element or diaphragm is attached to a second edge of the actuator (cf. figure 9A).

Therefore, the subject-matter of claim 2 in combination with the features of independent claim 1 fulfills the requirements of Articles 33(2) and 33(3) PCT.

5 **Claims 3-9** are dependent on **claim 2** and as such also meet the requirements of the PCT with respect to novelty and inventive step (Art. 33(2) and 33(3) PCT).

6 **DEPENDENT CLAIMS 10-18 AND 20-33**

Dependent **claims 10-18 and 20-33** do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and inventive step (Article 33(2) and (3) PCT), the reasons being as follows:

**claims 10-14 and 26-30:** cf. D1, figures 3A and 3B; D2, page 12, line 14 - page 13, line 12 and page 15, line 16 - page 16, line 30;

**claims 15 and 31:** the use of straight or planar actuators is well known in the area of piezoelectronic actuators; cf. e.g. D3, figure 1 and corresponding description;

**claims 16, 17, 32 and 33:** cf. D1 on page 4, lines 4-9 and D3 on page 4, last paragraph;

**claim 18:** the feature that the support is a portion of a housing of an electronic device is known to a skilled person; cf. e.g. D1 on page 1, lines 4-21 and D2;

**claim 20:** one end of the actuator is coupled to a portion of the diaphragm at the edge of the diaphragm; cf. D2, page 6, lines 1-5; page 8, lines 23-25, page 14, lines 7-15 and figures 5D and 6;

**claims 21-25:** cf. D1, figures 3A and 3B; D2, page 3, line 18 - page 4, line 20 and page 16, line 19 - page 16, line 30 and figures 10A and 10B;

**Re Item VII**

**Certain defects in the international application**

- 1 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

**Re Item VIII**

**Certain observations on the international application**

- 1 **Dependent claim 2** is not clear.  
The passage "the diaphragm is mounted to the support with a portion of the diaphragm coupled to one end of the actuator being fixed relative to the support" on page 12, line 10-12 is ambiguous.  
  
In the description on page 6, line 19 - page 7, line, page 7, lines 27-30 and figures 4 and 5 it is stated that one end of the actuator is coupled directly to a portion of the diaphragm and which end is fixed.
- 2 Independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would have been appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 3 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- 4 According to the requirements of Rule 11.13(I) reference signs not appearing in the description shall not appear in the drawings, and vice versa. This requirement is not met in view of the reference signs (64) and (65) in the description on page 7, line 8 and page 8, line 2.